Attorney Docket No.: 10033.200-US PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Nielsen et al. Serial No.: To Be Assigned

Confirmation No: To be assigned Group Art Unit: To be assigned

Filed: June 15, 2001 Examiner: To be assigned

For: Method for Genome Mining For Secreted Protein Genes

PRELIMINARY AMENDMENT

Commissioner for Patents
Washington, DC 20231

Sir:

Before the above-captioned application is taken up for examination, entry of the following amendment is respectfully requested (a marked up version pursuant to 37 C.F.R. 1.21 is attached hereto):

IN THE CLAIMS:

Please substitute the following amended claims for the pending claims having the same claim numbers:

3. (Amended.) The method of claim 1, wherein positive clones are isolated and subjected to at least one additional screening step.

4. (Amended.) The method of claim 1, wherein positive clones are subjected to at least one additional screening comprising cultivating said positive clones and assaying them in a second immunoassay using the same antibodies as used in the first immunoassay to eliminate possible false positives.

5. (Amended.) The method of claim 1, wherein the supernatant obtained from cultivating positive clones is used as a starting material for additional screening steps.

6. (Amended.) The method of claim 1, wherein the secreted product is an enzyme, and wherein at least one enzyme produced by a positive clone is isolated and tested in a functional assay for desired enzymatic activity.

7. (Amended.) The method of claim 1, wherein the donor strain is a microorganism.

8. (Amended.) The method of claim 1, further comprising the step of subjecting a secreted compound from a positive clone to an assay in which a desired functionality is tested for to identify clones that produce a compound exhibiting the desired functionality.

9. (Amended.) The method of claim 8, wherein the desired functionality is selected from wash performance, thermal stability, substrate specificity, catalytic turnover, oxidation stability, sensitivity to inhibitors, pH optimum, detergent stability, stability against microbial inactivation, toxicology, distribution profile in the human or animal body, metabolisation products, side effects, rate of metabolisation or secretion, receptor binding capacity, and antimicrobial capacity.

10. (Amended.) The method of claim 1, wherein the preparation of a gene library of step (b) is replaced by preparing a gene library from one or more microorganisms different from the donor organism.

11. (Amended.) The method of claim 1, wherein the preparation of a gene library of step (b) includes a step of mutating a nucleotide sequence of the library.

12. (Amended.) A compound obtained by the method of claim 1.

13. (Amended.) The compound of claim 12, which is selected from the group consisting of proteins and peptides.

15. (Amended.) A method for screening for a nucleotide sequence encoding a compound secreted by an organism, comprising:

(a) raising antibodies against secreted products of a donor organism,

(b) providing a gene library from the donor organism,

(c) cloning the gene library into a suitable host organism,

(d) expressing the cloned genes in the host organism,

(e) detecting positive clones expressing a cloned gene encoding a secreted compound using the antibodies of (a) to identify such positive clones, and

(f) subjecting at least one positive clone to nucleotide sequencing to identify at least one nucleotide sequence encoding a secreted compound.

16. (Amended.) A nucleotide sequence obtained by the method of claim 15.

17. (Amended.) A method for screening microorganisms for strains that secrete a compound, comprising:

(a) raising antibodies against secreted products of a donor organism, and

(b) subjecting the microgorganisms to an immunoassay using the antibodies from step (a) to identify microorganisms that secrete said compound.

18. (Amended.) The method of claim 17, wherein the screened microorganism is different from the donor organism.

19. (Amended.) The method of claim 17, wherein the organism to be screened is present in an environmental sample comprising a mixture of different microorganisms.

20. (Amended.) A microorganism obtained by the method of claim 17.

REMARKS

This amendment is submitted to remove multiple dependency in order to reduce the filing fee. There is no new matter added, and entry of the amendment is respectfully requested.

The Examiner is hereby invited to contact the undersigned by telephone if there are any questions concerning this amendment or application.

Respectfully submitted,

Date: June 15, 2001

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

Sir:

Below is a marked-up version of the amendments made in the accompanying amendment.

IN THE CLAIMS:

1. (Unchanged.) A method for screening for compounds secreted by an organism, comprising:

(a) raising antibodies against secreted products of a donor organism,

(b) providing a gene library from the donor organism,

(c) cloning the gene library into a suitable host organism,

(d) expressing the cloned genes in the host organism, and

(e) detecting positive clones expressing a cloned gene encoding a secreted compound using the antibodies of (a) to identify such positive clones.

2. (Unchanged.) The method of claim 1, wherein the secreted compound is selected from the group consisting of enzymes, other proteins and peptides.

3. (Amended.) The method of claim 1 [or 2], wherein positive clones are isolated and subjected to at least one additional screening step.

4. (Amended.) The method of [any of claims 1-3] claim 1, wherein positive clones are subjected to at least one additional screening comprising cultivating said positive clones and assaying them

in a second immunoassay using the same antibodies as used in the first immunoassay to eliminate possible false positives.

5. (Amended.) The method of [any of claims 1-3] claim 1, wherein the supernatant obtained from cultivating positive clones is used as a starting material for additional screening steps.

6. (Amended.) The method of [any of claims 1-5] claim 1, wherein the secreted product is an enzyme, and wherein at least one enzyme produced by a positive clone is isolated and tested in a functional assay for desired enzymatic activity.

7. (Amended.) The method of [any of claims 1-6] claim 1, wherein the donor strain is a microorganism[, in particular a bacteria or a fungus].

8. (Amended.) The method of [claims 1-7] claim 1, further comprising the step of subjecting a secreted compound from a positive clone to an assay in which a desired functionality is tested for to identify clones that produce a compound exhibiting the desired functionality.

9. (Amended.) The method of claim 8, wherein the desired functionality is selected from wash performance, thermal stability, substrate specificity, catalytic turnover, oxidation stability, sensitivity to inhibitors, pH optimum, detergent stability, stability against microbial inactivation, toxicology, distribution profile in the human or animal body, metabolisation products, side effects, rate of metabolisation or secretion, receptor binding capacity, and antimicrobial capacity.

10. (Amended.) The method of [claims 1-9] claim 1, wherein the preparation of a gene library of step (b) is replaced by preparing a gene library from one or more microorganisms different from the donor organism.

11. (Amended.) The method of [claims 1-9] claim 1, wherein the preparation of a gene library of step (b) includes a step of mutating a nucleotide sequence of the library.

12. (Amended.) A [novel] compound obtained [or obtainable] by the method of [any of claims 1-11] claim 1.

13. (Amended.) The compound of claim 12, which is selected from the group consisting of proteins and peptides.

14. The compound of claim 13, wherein the protein is an enzyme.

15. (Amended.) A method for screening for a nucleotide sequence encoding a compound secreted by an organism, comprising: [steps (a) to (e) of claim 1 and the additional step of subjecting at least one positive clone to nucleotide sequencing to identify at least one nucleotide sequence encoding a secreted compound]

(a) raising antibodies against secreted products of a donor organism,

(b) providing a gene library from the donor organism,

(c) cloning the gene library into a suitable host organism,

(d) expressing the cloned genes in the host organism,

(e) detecting positive clones expressing a cloned gene encoding a secreted compound using the antibodies of (a) to identify such positive clones, and

(f) subjecting at least one positive clone to nucleotide sequencing to identify at least one nucleotide sequence encoding a secreted compound.

16. (Amended.) A nucleotide sequence obtained [or obtainable] by the method of claim 15.

17. (Amended.) A method for screening microorganisms for strains that secrete a compound, comprising: [step (a) of claim 1 and the additional step of subjecting the microorganism to an immunoassay using the antibodies from step (a) of claim 1 to identify microorganisms that secrete said compound]

a) raising antibodies against secreted products of a donor organism, and

b) subjecting the microgorganisms to an immunoassay using the antibodies from step (a) to identify microorganisms that secrete said compound.

18. (Amended.) The method of claim 17, wherein the screened microorganism is different from the donor organism [of claim 1].

19. (Amended.) The method of claim 17, wherein the organism to be [screening] screened is present in an environmental sample comprising a mixture of different microorganisms.

20. (Amended.) A microorganism obtained [or obtainable] by the method [of any of claims 17-19] claim 17.